

## Claims

1. A fuel injection system for an internal combustion engine, having a fuel injector (10), which can be supplied with fuel from a high-pressure fuel source (1, 4) and which includes an injection valve member (37), opening or closing injection openings (43), and contains a low-pressure circuit (64) with a prefeed pump (55), which pumps fuel from a fuel tank (14), characterized in that partial return quantities, depressurized to the prefeed pressure of the prefeed pump (55), are delivered to the low-pressure circuit (54) by pressure boosters (7, 52) or by fuel injectors (10) inside an infeed portion (60) via returns (50, 52; 13, 53).
2. The fuel injection system of claim 1, characterized in that the high-pressure fuel source (1) subjects a common rail (4) to fuel that is at high pressure.
3. The fuel injection system of claim 1, characterized in that the low-pressure circuit (64) includes a compensation container (51) acted upon by the returns (50, 52) from the pressure booster (7).
4. The fuel injection system of claim 1, characterized in that the low-pressure circuit (64) includes a fuel filter (17) and a metering unit (59).
5. The fuel injection system of claim 4, characterized in that from the compensation container (51), a first infeed portion (66.1) extends to a first infeed point (61) in the infeed portion (60), which point is located upstream of the fuel filter (17).
6. The fuel injection system of claim 4, characterized in that from the compensation container (51), a second infeed portion (66.2) extends to a second infeed point (62) in the infeed portion (60), which point is located downstream of the fuel filter (17).

7. The fuel injection system of claim 4, characterized in that from the compensation container (51), a third infeed portion (66.3) extends to a third infeed point (63) in the infeed portion (60), which point is downstream of the metering unit (59).
8. The fuel injection system of claims 5, 6 and 7, characterized in that the infeed portions (66.1, 66.2, 66.3) are each secured against the fuel tank (14) via a respective overpressure valve (54).
9. The fuel injection system of claim 1, characterized in that the introduction portion (60) extends from the compression side (56) of the prefeed pump (55) to the high-pressure pumping unit (1).
10. The fuel injection system of claim 4, characterized in that the fuel filter (17) and the metering unit (59) for the high-pressure pumping unit (1) are located inside the infeed portion (60).
11. The fuel injection system of claim 1, characterized in that both injector control quantities and leakage quantities from the fuel injectors (10) are delivered to the low-pressure circuit (64) via a return (13, 53) inside the infeed portion (60) downstream of the prefeed pump (55).
12. The fuel injection system of claim 1, characterized in that the pressure booster (7) is integrated with the common rail (4).
13. The fuel injection system of claim 1, characterized in that the pressure booster (7) is integrated with the fuel injector (10).
14. The fuel injection system of claim 1, characterized in that the prefeed pressure of the prefeed pump (55) is between 4 and 8 bar.

15. The fuel injection system of claim 1, characterized in that a pressure change in the differential pressure chamber (27) of the pressure booster (7, 52) causes a pressure change in the high-pressure chamber (9) of the pressure booster (7, 52).